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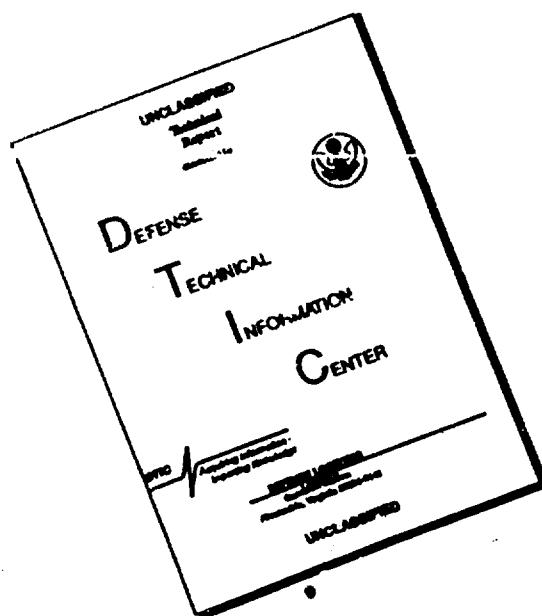
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Experiment on Mass Vaccination Against Q Fever. Report II- Remote results of the vaccination.

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In the first report we set forth the results of a test on the mass vaccination against Q fever in one of the populated areas of the Kirgiz section of the SSR, here the illness has been observed for many years. Preliminary serological studies of the complement fixing reaction with antigens of Bernet rickettsia of 2310 people showed that 23.6% of the population had had Q fever in the past. The prophylactic vaccination was used on 1128 people who had not been ill with Q fever before. The inoculation was in three phases with weekly intervals and with a vaccine prepared in the Department of Typhus Fever and Other Rickettsiosis of the L. V. Vasilova Institute of Epidemiology and Microbiology A.M.S. USSR.

A study of the reactivity of the vaccine indicated that the injection of the preparation caused a rise in temperature in 14.9%, an inflammatory reaction at the place of injection in 67.8%, 46.7% of these turned into infiltrates. A severe temperature reaction (above 38.5 C) and local hyperemia with a size exceeding 6 cm was noted in only 0.3% of those vaccinated. A study of the serum of those inoculated, 5 months later, indicated that there was a positive reaction of complement fixing with antigens of rickettsia (Bernet) in 73% of those inoculated, average titer was 1:70.

This report contains the results of our study of the reactivity and immunogenicity of the vaccine against Q fever. Results were obtained upon examination of those inoculated after a lapse of 10 months from date of inoculation.

As we have already reported, during the study of the reactivity of the vaccine 3-10 days after inoculation 527 people of 1128 had a formation of an infiltrate from 3-5 cm in size at the place of inoculation. During examination of a group of those vaccinated 10 months after their vaccination we established that in 10% there was a thick, slightly painful infiltrate at the locale of injection, ranging in size from that of a pea to that of an egg.

With the aid of local medical workers we were able to establish that ten people who had been vaccinated (8%) had an abscess formation at the locale of the infiltrate. From sessions with these patients and also from their hospital records, and journals of the medical area, we were able to conclude that these abscesses resulted from the softening of the infiltrate 2-3 weeks-4-5 months after vaccination. The abscess healed voluntarily or as a result of an operation. During voluntary healing of the abscess there were formed sores with serious excrements. No rise in temperature, lymphangitis or lymphadenitis was noted. The general condition of the patient remained good. The healing progressed slowly, a scar was left at the place of the abscess.

The pathogenesis of these abscesses remained unclearified. The origin of the subsequent abscesses could be regarded as an allergic reaction of the macro-organisms. The appearance of the abscess at the place of injection of the vaccine 2-3 weeks after the vaccination could be tied in with the intrusion of a secondary infection. Therefore, during inoculation against Q fever it is necessary to maintain stricter asepticism.

In order to study the durability and term of retention of the antibodies, we studied the serum of 333 people, 10 months after vaccination and with the aid of a complement fixing reaction. The studies indicated

that in the blood of 47.4% there were antibodies against the agent of Q fever, but the titer was much lower than the titer which had been obtained during our study of the serum 5 months after vaccination (Tab).

A two-fold study of the serums of 73 people, 5 and 10 months after vaccination, gave us basis to the dynamics of variation in the titers. In 52 there was a decrease of the titer, in 5 an increase and in 3 the titer of complement-fixing antibodies remained without variation.

Because the study was conducted in a region unsuitable for Q fever, which can be present without symptoms, the question arose as to whether the data of the serological examinations were results of the vaccination or symptomless infections. In order to decide this question we studied 157 people who had not been vaccinated and who maintained no special antibodies in their serum during verification in June of 1955.

Of the 157 serums only one contained complement fixing antibodies in a titer of 1:10, the remaining 156 serums were negative.

Thus, our observations clarified the good immunological effect of the utilized vaccine and the durable retainment of antibodies in the blood of those inoculated. This also forces us to repudiate the recommendation of Maiklejohn and Lennette on the revaccination of those inoculated against Q fever after 4-5 months.

We also tried to study the epidemiological effectiveness of the vaccine. Because the serological diagnosis of the illness in this populated area was not insured fully in all the patients, we had to establish the morbidity retrospectively. In order to do this we examined the history of the illnesses of those patients whose clinical chart was similar to the clinical chart of Q fever, and blood was taken for the complement fixing reaction if a serological diagnosis of illness had not been established earlier.

There were 14 cases of recovery from this disease among the workers of the plants where the inoculation had been conducted, this was in the period of July 1955 to May 1956. All of them had not been inoculated. No cases of Q fever had been registered among the 1128 people who had been vaccinated.

Because the morbidity of this entire populated point was low, we could not come to a conclusion about the epidemiological effectiveness of this vaccine.

Conclusions

1. A study of the serums of people inoculated against Q fever, 5-10 months after vaccination, indicated the good immunological effectiveness of the vaccine and led us to recommend revaccination no earlier than 1 year after the original vaccination.

2. During a study of the reactivity of the vaccine it was noted that in 10% there was an infiltrate at the place of injection and in 0.8% of the cases it turned into an abscess. Therefore, it is necessary to further perfect the vaccine of the Sernet rickettsia in regard to its high toxic and allergic action.

In conjunction with the above, and also in accordance with the resolution of the scientific-practical conference on rickettsiosis, we consider it valuable to resort to the application of vaccination against Q fever only for the inoculation of especially menacing contingents and lab person who are working with live agents of Q fever.

Results of a serological examination of the population 5 and 10 months after vaccination.

Time of study	Number of serums studied	Results of the study		Titers of reaction of the complements of the fixation								Average
		Reactive	Positive	1:5	1:10	1:20	1:40	1:80	1:160	1:320	1:640	
5 months after vaccination	294 total 100%	79	215	12	29	34	58	52	20	8	3	1:70
		27	73	5.7	13.5	15.8	27	23.6	9.3	3.7	1.4	
10 " "	333 total 100%	175	158	18	38	56	27	15	3	1	-	1:36
		52.6	47.4	11.3	24.5	35.4	17	9.4	1.8	0.6	-	